

This document provides pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Major, Municipal permit. The discharge results from the operation of a 3.0 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia Water Quality Standards (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained within this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1. Facility Name and Mailing Address: Town of Orange Wastewater Treatment Plant  
119 Belleview Ave.  
Orange, VA 22960  
SIC Code: 4952 WWTP  
Facility Location: 13222 Spicers Mill Road  
Orange, VA 22960  
County: Orange  
Facility Contact Name: Michelle Steinberger, Chief Operator  
Telephone Number: (540) 672-3112  
Facility Email Address: ams@townoforangeva.org
2. Permit No.: VA0021385  
Expiration Date: 1 August 2016  
Other VPDES Permits: VAN020025  
Other Permits: VA0053121 - Town of Orange's Water Treatment Plant  
E2/E3/E4 Status: Not Applicable
3. Owner Name: Town of Orange  
Owner Contact / Title: Gregory S. Woods/Town Manager  
Telephone Number: (540) 672-5005  
Owner Email Address: townmanager@townoforangeva.org
4. Application Complete Date: 27 January 2016  
Permit Drafted By: Caitlin Shipman  
Date Drafted: 4/21/2016  
Draft Permit Reviewed By: Anna Westernick  
Date Reviewed: 4/25/2016  
Draft Permit Reviewed By: Alison Thompson  
Date Reviewed: 5/2/2016  
Public Comment Period : Start Date: End Date:
5. Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination  
Receiving Stream Name: Rapidan River  
Stream Code: 3-RAP  
Drainage Area at Outfall: 233 square miles  
River Mile: 48.2  
Stream Basin: Rappahannock  
Subbasin: Rapidan – Upper Rappahannock  
Section: 4  
Stream Class: III  
Special Standards: None  
Waterbody ID: VAN-E13R/RA30  
7Q10 Low Flow: 2.68 MGD  
7Q10 High Flow: 25.14 MGD  
1Q10 Low Flow: 1.49 MGD  
1Q10 High Flow: 19.86 MGD  
30Q10 Low Flow: 6.65 MGD  
30Q10 High Flow: 35.71 MGD  
Harmonic Mean Flow: 55.52 MGD  
30Q5 Flow: 10.61 MGD
6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:
 

<u>  X  </u> State Water Control Law <u>  X  </u> Clean Water Act <u>  X  </u> VPDES Permit Regulation <u>  X  </u> EPA NPDES Regulation	<u>  X  </u> EPA Guidelines <u>  X  </u> Water Quality Standards _____ Other (PES, Occoquan Policy, Dulles) _____ (GP – note regulation and title)
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7. **Licensed Operator Requirements:** Class I

8. **Reliability Class:** Class I

9. **Facility / Permit Characterization:**

<input type="checkbox"/> Private	<input checked="" type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule
<input type="checkbox"/> State	<input checked="" type="checkbox"/> Whole Effluent Toxicity Program	<input type="checkbox"/> Interim Limits in Permit
<input checked="" type="checkbox"/> POTW	<input checked="" type="checkbox"/> Pretreatment Program	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> eDMR Participant	<input checked="" type="checkbox"/> Total Maximum Daily Load (TMDL)	

10. **Wastewater Sources and Treatment Description:**

This wastewater treatment plant primarily treats municipal wastewater from the Town of Orange while also serving a small portion of Orange County. The facility underwent an extensive upgrade and expansion in 2010; the facility's design flow increased to 3.0 MGD and enhanced nutrient removal (ENR) technology was added. The facility current only utilizes one of the three trains available and operates at approximately one third of the design flow. The CTO was issued June 8, 2011 (**see Attachment 2**).

Since the upgrade in 2010, the existing primary clarifier, now the bio-augmentation tank, remains in service to promote hydrolysis and acid fermentation. This increases volatile fatty acids entering the downstream anoxic zones, which enhances nutrient removal. The existing secondary clarifier was converted to a primary clarifier and equalization basin, but was later demolished.

Sludge from the Town of Orange's Water Treatment Plant is received at the Town of Orange's Wastewater Treatment Plant approximately once per month. Sludge is pumped to the facility and held in the bio-augmentation tank. Additionally, plant drains, filter backwash, filtrate from the belt filter presses, and decant from aerobic sludge digesters are received at this location. Transfer pumps convey this side stream to the digester.

Primary Treatment

Wastewater enters the facility through two mechanical bar screens with a compactor system, removing large debris in the process. Water then flows through a pump station with a flow meter and then through a Grit King, removes the remaining debris.

Secondary Treatment

The biological process in place is a single sludge suspended growth process, known as the 4-stage Bardenpho System. Based on an annual average daily flow of 3.0 MGD, the unit has a total volume of 1.5 million gallons. The anticipated BOD load is 4,620 lb/day or 38.5 lb/d/1,000 ft<sup>3</sup> based on a 0.90 million gallons in the nitrification and re-aeration basins.

Three treatment trains are available with room to add another train in the future. In each train, the nitrification basin is divided into two compartments. Because the waste strength is higher in the first basin, more air will be required. Analysis shows that more than 50% of BOD and 90% of TKN is oxidized in the first chamber. Accordingly, the first chamber requires 50% more air flow than the second. Coarse bubble diffusers are specified to insure adequate mixing during low loading periods when lower air flow rates will be necessary. Pumping is provided for return mixed liquor recycle flow for each train.

The volumes of the first and second anoxic zones are equal. Denitrification rates for endogenous respiration are much lower in the second anoxic basin than the first. Because of this, an additional carbon source may need to be added during cold weather. This was included in the original design. Additionally, each basin will be provided with floating or submersible mixers in the anoxic zone. Magnesium hydroxide may be added at the influent splitter box or treatment basins for pH control.

Secondary Clarification

After secondary treatment, water enters a splitter box and is divided between three 68-foot diameter circular secondary clarifiers. Room is available onsite for an additional secondary clarifier. Each secondary clarifier has a return activated sludge pump station. Alum or ferric chloride is added at the secondary clarifier splitter box to assist in removing phosphorus or to aid sedimentation, filtration, and dewatering of residuals. Sodium hypochlorite use to be added to the wiers of the clarifiers between May and September to control algal growth, but has not been used in the past four years. Algal growth is now controlled by manually cleaning the clarifiers weekly.

Effluent Filtration

Tertiary effluent filtration is achieved by two cloth media filter units, which operate in parallel. Each filter unit has twelve disks, totaling 646 ft<sup>2</sup> of filtration surface area per filter, resulting in a total of 1,292 ft<sup>2</sup> of filtration area. The woven cloth media has a nominal pore opening of 10 microns that is capable of producing a low TSS effluent under a wide range of loading conditions. At the design flow of 3.0 MGD, the hydraulic loading rate will be approximately 1.6 gpm/ft<sup>2</sup>. At peak flow conditions of 8.0 MGD, the hydraulic loading rate will be approximately 4.3 gpm/ft<sup>2</sup>.

Disinfection and Final Discharge

Disinfection is achieved through the use of two UV filter banks operating in parallel. After disinfection, the effluent flows through a Parshall Flume, where it is metered, and a 12-step cascade aerator. Discharge is to the Rapidan River through a 24-inch shore-based outfall approximately 500 ft downstream of a coffer dam. At the discharge area, the receiving stream is approximately 80 ft wide.

Nine stormwater outfalls for the Town of Orange Wastewater Treatment Plant were permitted under the VPDES General Permit for Stormwater Discharges Associated with Industrial Activity (VAR051419). A site review was conducted by DEQ staff on March 13, 2014. By letter dated April 24, 2014, DEQ approved the no-exposure certification to the facility (**Attachment 3**). The VPDES General Permit for Storm Water Discharges Associated with Industrial Activity was terminated on May 24, 2014.

See **Attachment 4** for a facility schematic/diagram.

TABLE 1 OUTFALL DESCRIPTION				
Number	Discharge Sources	Treatment	Design Flow	Latitude / Longitude
001	Domestic and/or Commercial Wastewater	See Section 10	3.0 MGD	38° 15' 56.8" 78° 09' 21.3"
Stormwater Outfalls 001 - 009	Non-Contaminated Stormwater	None	Not Applicable	Various
See <b>Attachment 5</b> for the Madison Mills, DEQ#185C topographic map.				

**11. Sludge Treatment and Disposal Methods:**

Sludge is wasted daily and held in an aerated sludge holding tanks before being dewatered by a belt filter press. Decanted and dewatered sludge water is returned to the bio-augmentation tank. De-watered sludge is transported to the Orange County Landfill for disposal. In the application for the permit's reissuance, the Town of Orange originally planned to use land application as a back-up sludge disposal method.

Per correspondence on May 2, 2016, the permittee chose to not include land application as a back-up method for sludge disposal (as stated in the application).

**12. Other Permitted Discharges Located Within Waterbody VAN-E13R:**

TABLE 2 PERMITTED DISCHARGES			
ID / Permit Number	Facility Name	Type	Receiving Stream
VAG406450	Rutt David Property	Single Family Home <1000 gpd	Laurel Run, UT
VAR051040	American Woodmark – Orange Dimension Plant	Storm Water Industrial	Laurel Run, UT
VA0060879	Rapidan Baptist Camp and Conference Center	VPDES Individual Permit	Rapidan River, UT
VA0027839	Woodberry Forest School		Rapidan River
			Rapidan River, UT
3-RAP045.08	DEQ Monitoring Station at Route 15	Ambient	Rapidan River

**13. Material Storage:**

TABLE 3 MATERIAL STORAGE		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Alum	8,000 gallons	Stored in a concrete containment area that drains to the influent pump station.
Magnesium Hydroxide	4,000 gallons	
Micro Glycerin	1,000 gallons	

**14. Site Inspection:**

A site inspection was performed by NRO Water Compliance staff on October 30, 2015 (see **Attachment 6**). NRO Water Permitting staff, Caitlin Shipman and Anna Westernnik, visited the site on April 8, 2016.

**15. Receiving Stream Water Quality and Water Quality Standards:****a. Ambient Water Quality Data**

This facility discharges to the Rapidan River. DEQ ambient monitoring station 3-RAP045.08 is located at Route 15, approximately 3.12 miles downstream from Outfall 001.

Class III, Section 4.

DEQ monitoring stations located in this segment of the Rapidan River:

- ambient monitoring station 3-RAP045.08, at Route 15

*E. coli* monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. The aquatic life and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

**b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)**

TABLE 4 IMPAIRMENT AND TMDL INFORMATION FOR THE RECEIVING STREAM SEGMENT						
Waterbody Name	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	TMDL Schedule
<i>Impairment Information in the Draft 2014 Integrated Report</i>						
Rapidan River	Recreation	<i>E. coli</i>	Rapidan River Bacteria TMDL 12/05/2007	5.22E+12 cfu/year <i>E. coli</i>	126 cfu/100 ml <i>E. coli</i> --- 3.00 MGD	---

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal. The draft 2012 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban storm water, onsite/septic agriculture, air deposition]. Fact Sheet Section 17.e provides additional information on specific nutrient limitations for this facility to implement the provisions of the Chesapeake Bay TMDL.

The full planning statement is found in **Attachment 7**.

c. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Rapidan River is located within Section 4 of the Rappahannock River Basin and classified as Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32° C and maintain a pH of 6.0 – 9.0 standard units (S.U.).

The Freshwater Water Quality/Wasteload Allocation Analysis located in **Attachment 8** details other water quality criteria applicable to the receiving stream.

Some Water Quality Criteria are dependent on the pH, temperature and total hardness of the receiving stream and/or final effluent. These values were utilized to determine the criterion found in **Attachment 8** for the following pollutants: pH, total hardness.

pH and Temperature for Ammonia Criteria

The fresh water, aquatic life Water Quality Criteria for ammonia is dependent on the instream pH and temperature. Since the effluent may have an impact on the instream values, the pH and temperature values of the effluent must also be considered when determining the ammonia criteria for the receiving stream. The 90th percentile pH and temperature values are utilized because they best represent the critical conditions of the receiving stream.

Ambient water quality data for waterbody VAN-E13R were available and are presented in **Attachment 9**. The 90th percentile value for pH is 7.6 S.U., the 90<sup>th</sup> percentile annual and wet season temperatures are respectively 24.6 °C and 13.8 °C.

Staff re-evaluated the effluent data for pH and determined it was significantly different from the data used to establish ammonia criteria and subsequent effluent limits in the previous permit. Based on the pH values reported in the Discharge Monitoring Reports (DMRs) from 2011 – 2016, the effluent pH data calculations are presented in **Attachment 10**. The 90% percentile maximum pH and 10% maximum pH values are 8.6 S.U. and 7.8 S.U. respectively. During the last permit reissuance, the 90% percentile maximum pH and 10% maximum pH values were 8.1 S.U. and 6.1 S.U.

A default temperature value of 25° C and an assumed temperature value of 15° C for summer and winter, respectively, were utilized since effluent temperature data were not readily available.

Hardness Dependent Metals Criteria

The Water Quality Criteria for some metals are dependent on the receiving stream and/or effluent total hardness values (expressed as mg/L calcium carbonate).

The hardness dependent metals criteria in **Attachment 8** are based on the average effluent value from the Discharge Monitoring Reports from 2011 – 2016 of 120.7 mg/L CaCO<sub>3</sub> and on the average value for waterbody VAN-E13R 29.6 mg/L CaCO<sub>3</sub>.

Bacteria Criteria

The Virginia Water Quality Standards at 9VAC25-260-170A state that the following criteria shall apply to protect primary recreational uses in surface waters:

*E. coli* per 100 mL of water shall not exceed the following:

	Geometric Mean <sup>1</sup>
Freshwater <i>E. coli</i> (N/100 mL)	126

<sup>1</sup>For a minimum of four weekly samples taken during any calendar month

d. Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Rapidan River, is located within Section 4 of the Rappahannock River Basin. This section has not been designated with a special standard.

e. Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on February 1, 2016 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2 mile radius of the discharge: Shenandoah Salamander (*Plethodon Shenandoah*), Dwarf Wedgemussel (*Alasmidonta heterodon*), Northern Long-Eared Bat (*Myotis septentrionalis*), Peregrine Falcon (*Falco peregrines*), Upland Sandpiper (*Bartramia longicauda*), Loggerhead Shrike (*Lanius ludovicianus*), Green Floater (*Lasmigona subviridis*), Migrant Loggerhead Shrike (*Lanius ludovicianus migrans*), Regal Fritillary (*Speyeria idalia idalia*), Bald Eagle (*Haliaeetus leucocephalus*), and Yellow Lance (*Elliptio lanceolata*). The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore protect the threatened and endangered species found near the discharge.

In addition, the Virginia Department of Conservation and Recreation; the Virginia Department of Game and Inland Fisheries; and the United States Fish and Wildlife Service were coordinated during this reissuance per the procedures as set forth in the 2007 Memorandum of Understanding (MOU) concerning Threatened and Endangered Species Screening for VPDES Permits. The purpose of this coordination is to obtain input from other agencies during the permitting process to ascertain potential adverse impacts to threatened and endangered species and/or their habitats.

Any comments from these agencies are located in Section 27 of this Fact Sheet.

**16. Antidegradation (9VAC25-260-30):**

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards for all parameters the Board has adopted criteria for, not including fecal coliform. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

This segment of the receiving stream, the Rapidan River, has no noted downstream impairments. The aquatic and wildlife uses are considered fully supporting. The fish consumption use was not assessed (**Attachment 7**). It is current agency guidance that if data or information is not available to make a determination, the stream is assumed to be Tier 2 (Guidance Memo No. 00-2011). Therefore, it is assumed that the fish consumption use is not impaired. Additionally, there are no 303(d) impairments listed within 15 miles downstream.

This facility has been in place since before the adoption of the Virginia Water Quality Standards on March 30, 1992. An extensive upgrade and expansion was completed in December 2010. This upgrade included implementing enhanced nutrient removal technology so the facility could comply with EPA's Chesapeake Bay TMDL and Virginia's Watershed Implementation Plan for the Chesapeake Bay TMDL. The upgrade and expansion implemented was based on limits applicable to a Tier 1 stream. Therefore, the proposed limits in this permit have been established by determining wasteload allocations which will result in maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

**17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:**

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. The WLA values are then compared with available effluent data to determine the need for effluent

limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are then calculated on the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data.

A review of the water quality monitoring data for the receiving stream indicated that the water quality of the stream in the vicinity of the discharge exceeds the water quality standards. Due to the higher quality waters of the receiving stream, if the facility expands or undergoes an upgrade in the future, then the receiving stream may be designated as a Tier 2 water body at the following permit reissuance and the limit derivations would be based on Antidegradation Wasteload Allocations.

a. Effluent Screening

Effluent data obtained from the permit application, chronic toxicity testing and Discharge Monitoring Reports (DMRs) has been reviewed and determined to be suitable for evaluation. Please see **Attachment 12** for a summary of effluent data.

The following pollutants require a wasteload allocation analysis: Antimony, Copper, Lead, Mercury, Nickel, Zinc, and Ammonia.

b. Mixing Zones and Wasteload Allocations (WLAs)

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:

WLA	=	Wasteload allocation
C <sub>o</sub>	=	In-stream water quality criteria
Q <sub>e</sub>	=	Design flow
Q <sub>s</sub>	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; harmonic mean for carcinogen-human health criteria; 30Q10 for ammonia criteria; and 30Q5 for non-carcinogen human health criteria)
f	=	Decimal fraction of critical flow
C <sub>s</sub>	=	Mean background concentration of parameter in the receiving stream.

The Water Quality Standards contain two distinct mixing zone requirements. The first requirement is general in nature and requires the "use of mixing zone concepts in evaluating permit limits for acute and chronic standards in 9VAC25-260-140.B". The second requirement is specific and establishes special restrictions for regulatory mixing zones "established by the Board".

The Department of Environmental Quality uses a simplified mixing model to estimate the amount of mixing of a discharge with the receiving stream within specified acute and chronic exposure periods. The simplified model contains the following assumptions and approximations:

- The effluent enters the stream from the bank, either via a pipe, channel or ditch.
- The effluent velocity isn't significantly greater (no more than 1 - 2 ft/sec greater) than the stream velocity.
- The receiving stream is much wider than its depth (width at least ten times the depth).
- Diffusive mixing in the longitudinal direction (lengthwise) is insignificant compared with advective transport (flow).
- Complete vertical mixing occurs instantaneously at the discharge point. This is assumed since the stream depth is much smaller than the stream width.
- Lateral mixing (across the width) is a linear function of distance downstream.
- The effluent is neutrally buoyant (e.g. the effluent discharge temperature and salinity are not significantly different

from the stream's ambient temperature and salinity).

- Complete mix is determined as the point downstream where the variation in concentration is 20% or less across the width and depth of the stream.
- The velocity of passing and drifting organisms is assumed equal to the stream velocity.

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge: ammonia as N is likely present since this is a WWTP treating sewage and data from the permit application indicates Antimony, Copper, Lead, Nickel, Mercury, and Zinc are present in the discharge. As such, **Attachment 13** details the mixing analysis results for WLA derivations for these pollutants.

c. Effluent Limitations, Outfall 001 – Toxic Pollutants

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N/TKN

Staff reevaluated pH and temperature and has concluded it is significantly different than what was used previously to derive ammonia criteria. As a result, staff used the new data to determine new ammonia water quality criteria, new wasteload allocations (WLAs) and new ammonia limits (**Attachment 11**). DEQ guidance suggests using a sole data point of 9.0 mg/L for discharges containing domestic sewage to ensure the evaluation adequately addresses the potential for ammonia to be present in the discharge containing domestic sewage. Using this guidance, a monthly ammonia limit of 1.8 mg/L and a weekly ammonia limit of 2.3 mg/L were calculated (**Attachment 11**).

The toxicity of ammonia is dependent on the pH of the effluent and/or receiving stream. Ammonia can exist as both "ionized ammonia" ( $\text{NH}_4$ ) and "un-ionized ammonia" ( $\text{NH}_3$ ). Research has shown that the un-ionized ammonia is the fraction that is toxic to aquatic life while the ionized ammonia has been found to have little or no toxic effect. Furthermore, it has been demonstrated that the un-ionized fraction increases correspondingly with rising pH values; thus, increasing potential toxicity and the basis for the above calculated ammonia limits. It is generally accepted that total Kjeldahl nitrogen (TKN) consists of approximately 60% ammonia in raw wastewater. As the waste stream is treated, the ammonia component of TKN is converted to nitrate ( $\text{NO}_3$ ) and nitrite ( $\text{NO}_2$ ).

Effluent TKN data for the past 5 years was obtained from DMRs and reviewed with this reissuance. During the last permitting term, the average concentration of TKN was 1.7 mg/L and the 90% maximum concentration was 3.50 mg/L.

The dissolved oxygen model was run in February 2016 for the 3.0 MGD flow tier. The model indicates that a TKN of 7.0 mg/L is protective of the dissolved oxygen standard (**Attachment 14**). Assuming that 60% of the TKN present is ammonia, a TKN limit of 7.0 mg/L is not protective of ammonia criteria. It is staff's professional judgment that a TKN limit of 3.0 mg/L is protective of the dissolved oxygen standard and the ammonia wasteload allocation and should be implemented with this reissuance. A TKN limit is being given in lieu of an Ammonia limit.

The Environmental Protection Agency (EPA) finalized new, more stringent ammonia criteria in August 2013; possibly resulting in significant reductions in ammonia effluent limitations. It is staff's professional judgment that the incorporation of those criteria into the Virginia Water Quality Standards is forthcoming. This and many other facilities may be required to comply with these new criteria during their next respective permit terms. The ammonia criteria will be revisited during the next reissuance.

2) Total Residual Chlorine (TRC)

Chlorine is not used as disinfection at this facility and is no longer being added to the wiers of the clarifiers to control algal growth. Therefore, chlorine limits are not applicable and were not included in this reissuance.

3) Metals/Organics

The three total metals sampling events, submitted with the permit application, showed numerous metals being detected above quantification levels. Due to the results of these sampling events, totals metal sampling was requested of the influent, effluent, and of the water from the bio-augmentation tank that receives the Town of Orange's Water Treatment Plant (VA0052121) sludge. The results from this sample event were used to characterize the movement of metals within the plant, see **Attachment 15** for a summary of these results.

Limits are no longer required for metals. Lead, Mercury, Copper, Zinc and Nickel were evaluated and it was determined that no limits are necessary for these pollutants because a reasonable potential to exceed water quality standards has not been exhibited (**Attachment 16**).

Antimony does not have an aquatic life criterion. However, the human health criteria for Antimony (640 µg/L) exceeds the Antimony concentrations found in the effluent (0.17 µg/L, 0.26 µg/L, and 0.41 µg/L). Therefore, limits for Antimony are not warranted.

While a limit is not required for Copper or Zinc, there have been no changes in treatment or in influent sources. Therefore, in order to ensure water quality continues to be protected, monitoring once every six months will be implemented in lieu of a limit.

See **Attachment 16** for WLA and derivation of the metals limits.

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), total suspended solids (TSS), carbonaceous oxygen demand (cBOD<sub>5</sub>), *E. coli*, and pH limitations are proposed.

The TKN limit is based on the WLA analysis for Ammonia (**Attachment 11**) and the dissolved oxygen model (**Attachment 14**).

Dissolved oxygen and cBOD<sub>5</sub> limitations are based on the stream modeling conducted in February 2016 (**Attachment 14**).

It is staff's practice to equate the total suspended solids limits with the cBOD<sub>5</sub> limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

*E. coli* limitations are in accordance with the Water Quality Standards 9VAC25-260-170

e. Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 – *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new or expanding discharges with design flows of ≥ 0.04 MGD to treat for TN and TP to either BNR (Biological Nutrient Removal) levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA (State of the Art) levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 – *General Virginia Pollutant Discharge Elimination System*

(VPDES) *Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN020025. Total Nitrogen Annual Loads and Total Phosphorus Annual Loads from this facility are found in 9VAC25-720 – *Water Quality Management Plan Regulation* which sets forth TN and TP maximum wasteload allocations for facilities designated as significant discharges, i.e. those with design flows of  $\geq 0.5$  MGD above the fall line and  $> 0.1$  MGD below the fall line.

Monitoring for nitrates + nitrites, total Kjeldahl nitrogen, total nitrogen, and total phosphorus are included in this permit. The monitoring is needed to protect the Chesapeake Bay Water Quality Standards. Monitoring frequencies are set at the frequencies as set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for total nitrogen and total phosphorus are included in this individual permit. The annual averages are based on 9VAC25-40 and GM07-2008.

f. Effluent Limitations and Monitoring Summary

The effluent limitations are presented in Section 19. Limits were established for carbonaceous oxygen demand-5 day (cBOD<sub>5</sub>), total suspended solids (TSS), total Kjeldahl nitrogen (TKN), pH, dissolved oxygen (D.O.), total nitrogen (TN), and total phosphorus (TP).

The limit for total suspended solids is based on staff's professional judgment.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then a conversion factor of 3.785.

The mass loading (lb/d) for TKN monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then a conversion factor of 8.345.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual, with the exception of cBOD. During this permit reissuance, the permittee requested a reduction in sampling frequency for carbonaceous oxygen demand (cBOD<sub>5</sub>) based on a history of compliance with the limit. In accordance with current agency guidance, five years worth of DMR data was reviewed. A ratio of the average concentration of cBOD<sub>5</sub> and the permitted limit indicate that the facility is eligible for three day per week sampling, contingent on the facility maintaining its record of compliance. See **Attachment 17** for a summary of the facility's cBOD<sub>5</sub> compliance history and the calculation of the ratio of the facility's actual performance to the permit limit.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for cBOD and TSS (or 65% for equivalent to secondary). The limits in this permit are water quality-based effluent limits and result in greater than 85% removal.

**18. Antibacksliding:**

In conformance with the anti-backsliding provisions of Section 402(o) of the Clean Water Act, 9VAC25-31-220.L., and 40 CFR 122.44, Total Recoverable Zinc and Total Recoverable Copper limits were removed and replaced with monitoring once every six months. Evaluation of the 2011-2016 Discharge Monitoring Reports indicates that there is no reasonable potential to cause or contribute to instream exceedances of water quality criteria for Total Recoverable Copper or Total Recoverable Zinc. The revisions to the limits are allowed since the revisions comply with the Water Quality Standards 402(o)(2) and they are consistent with antidegradation 303(d)(4)(B).

## VPDES PERMIT PROGRAM FACT SHEET

VA0021385  
PAGE 11 of 15

# 19. Effluent Limitations/Monitoring Requirements

a. Municipal Outfall 001:

Design flow is 3.0 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS			
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		NA		NA	NL	Continuous	TIRE
pH	1	NA		NA		6.0 S.U.	9.0 S.U.	1/D	Grab
cBOD <sub>5</sub> <sup>a</sup>	1,4	10 mg/L	110 kg/day	15 mg/L	170 kg/day	NA	NA	3D/W <sup>g</sup>	24H-C
Total Suspended Solids (TSS) <sup>a, b</sup>	2	10 mg/L	110 kg/day	15 mg/L	170 kg/day	NA	NA	5D/W	24H-C
Dissolved Oxygen (DO)	1,4	NA		NA		6.0 mg/L	NA	1/D	Grab
<i>E. coli</i> (Geometric Mean) <sup>c</sup>	1,6	126 n/100 mL		NA		NA	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	1,4	3.0 mg/L	75 lb/day	4.5 mg/L	110 lb/day	NA	NA	5D/W	24H-C
Nitrate+Nitrite, as N	1,5	NL mg/L		NA		NA	NA	1/W	24H-C
Total Nitrogen <sup>d, e</sup>	1,5	NL mg/L		NA		NA	NA	1/W	Calculated
Total Nitrogen – Year to Date <sup>d, e</sup>	1,5	NL mg/L		NA		NA	NA	1/M	Calculated
Total Nitrogen – Calendar Year <sup>d, e</sup>	1,5	4.0 mg/L		NA		NA	NA	1/YR	Calculated
Total Phosphorus	1,5	NL mg/L		NA		NA	NA	1/W	24H-C
Total Phosphorus – Year to Date <sup>e</sup>	1,5	NL mg/L		NA		NA	NA	1/M	Calculated
Total Phosphorus – Calendar Year <sup>e</sup>	1,5	0.3 mg/L		NA		NA	NA	1/YR	Calculated
Zinc, Total Dissolved	1	NL µg/L		NL µg/L		NA	NA	1/6M	Grab
Copper, Total Dissolved	1	NL µg/L		NL µg/L		NA	NA	1/6M	Grab
Total Hardness (as CaCO <sub>3</sub> )	2	NL mg/L		NL mg/L		NA	NA	1/6M	Grab
Chronic Toxicity – <i>C. dubia</i> <sup>f</sup>	1,7	NA		NA		NA	NL	1/YR	24H-C
Chronic Toxicity – <i>P. promelas</i> <sup>f</sup>	1,7	NA		NA		NA	NL	1/YR	24H-C

The basis for the limitations codes are:

- |   |   |   |
|---|---|---|
| 1. Water Quality Standards  | <i>MGD</i> = Million gallons per day.                         | <i>1/D</i> = Once every day.            |
| 2. Professional Judgment  | <i>NA</i> = Not applicable.                                   | <i>3D/W</i> = Three days a week.        |
| 3. DEQ Disinfection Guidance  | <i>NL</i> = No limit; monitor and report.                     | <i>5D/W</i> = Five days a week.         |
| 4. Stream Model – <b>Attachment 14</b>                                | <i>S.U.</i> = Standard units.                                 | <i>1/M</i> = Once every month.          |
| 5. 9VAC25-40 (Nutrient Regulation)                                    | <i>TIRE</i> = Totalizing, indicating and recording equipment. | <i>1/Q</i> = Once every quarter.        |
| 6. Rapidan River Bacteria TMDL  |   | <i>1/6M</i> = Once every six months.    |
| 7. Toxics Management Program Implementation Guidance (GM No. 00-2012) |   | <i>1/YR</i> = Once every calendar year. |

**24H-C** = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the monitored 24-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of twenty-four (24) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum twenty-four (24) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15 minutes.

- At least 85% removal for cBOD<sub>5</sub> and TSS shall be obtained.
- TSS shall be monitored to two significant digits.
- Samples shall be collected between 10:00 a.m. and 4:00 p.m.
- Total Nitrogen = Sum of TKN plus Nitrate+Nitrite
- See Section 20.a for nutrient reporting requirements.
- See Section 20.c. for WET testing requirements.
- See Section 21.m. for Effluent Monitoring Frequency special condition.

**19. Effluent Limitations/Monitoring Requirements (continued):****b. Stormwater Outfalls 001- 009**

Effective Dates: During the period beginning with effective date of the permit and lasting until the expiration date.

The facility is authorized to discharge non-contaminated storm water through Stormwater Outfalls 001-009.

No monitoring of effluent limitations are proposed for these outfalls.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

There shall be no discharge of process wastewater through these outfalls.

**20. Other Permit Requirements:****a. Permit Section Part I.B. contains Additional Quantification Levels and Compliance Reporting Instructions**

The calculations for the nitrogen and phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 – *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

**b. Permit Section Part I.C. contains Pretreatment Requirements**

The VPDES Permit Regulation at 9VAC25-31-210 requires monitoring and 9VAC25-31-220.D. requires that all discharges protect water quality. The VPDES Permit Regulation at 9VAC25-31-730. through 900., and 40 CFR Part 403 requires POTWs with a design flow of >5 MGD and receiving from Industrial Users (IUs) pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards to develop a pretreatment program. Program requirements and reporting are found in this section of the permit.

The Town of Orange has an inactive pretreatment program with no SIUs. Until such time any Significant Industrial User permit is issued by the facility, the pretreatment program requirements stated in the permit are deferred.

**c. Permit Section Part I.D. Details the Requirements for Whole Effluent Toxicity Program**

Whole Effluent Toxicity (WET) refers to the aggregate toxic effect to aquatic organisms from all pollutants present within a facility's wastewater effluent. This program is one approach to comply with the Clean Water Act's prohibition of the discharge of toxic pollutants in toxic amounts. WET testing allows for the measurement of the wastewater's potential effects on specific test organism's ability to survive, grow and reproduce.

The VPDES Permit Regulation at 9VAC25-31-220.D.1.a-d. requires limitations in permits to provide for and ensure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. Limitations must control all pollutants or pollutant parameters which the Board determines are or may be discharged at a level which will cause, have the reasonable potential to cause or contribute to an excursion above any Virginia water quality standard, including narrative criteria. The determination whether a discharge causes or contributes to an instream excursion above a narrative or numeric criteria shall utilize procedures which account for existing controls on sources of pollution, variability of the pollutant, species sensitivity and dilution of the effluent in the receiving stream. If it is determined that a reasonable potential exists to cause or contribute to an instream excursion of narrative criterion of the water quality standard, the permit must contain effluent limits for whole effluent toxicity. However, limits may not be necessary when it is demonstrated that chemical-specific limits are sufficient to attain and maintain applicable numeric and narrative water quality standards.

A WET Program is imposed for municipal facilities with a design rate >1.0 MGD, all facilities with an approved pretreatment program or required to develop a pretreatment program and/or those required by the Board based on effluent variability, compliance history, instream waste concentration (IWC), existing pollutant controls and/or receiving stream characteristics. The design flow of this facility is 3.0 MGD; thus, meeting the criteria for this program.

As referenced above, reasonable potential determinations must take into account the variability of the pollutant or pollutant parameter in the effluent, sensitivity of the species to toxicity testing and, as appropriate, the dilution of the effluent in the receiving stream. This warrants a sampling regime that rotates throughout a given calendar year; a quarterly schedule in

order to obtain seasonal perspectives that encompass that potential variableness listed prior. This methodology coincides with the VPDES Permit Regulation requirements that facilities submit representative data that reflects the seasonal variation in the discharge with each permit application (9VAC25-31-100.K.4.g.). Therefore, it is staff's best professional judgement that a WET testing protocol be proposed with this permit action that requires a rotating, quarterly testing regime for each annual monitoring requirement. The schedule as set forth within Part I.D. of the permit will ensure that the discharge is monitored for whole effluent toxicity and demonstrates seasonal variations.

See **Attachment 18** for a summary of the past test results.

## 21. Other Special Conditions:

- a. 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.
- b. Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200.B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.
- c. O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- d. CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct (CTC) prior to commencing construction and to obtain a Certificate to Operate (CTO) prior to commencing operation of the treatment works.
- e. Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200.C., and by the Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class I operator.
- f. Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a Reliability Class of I.
- g. Water Quality Criteria Reopener. The VPDES Permit Regulation at 9VAC25-31-220.D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.
- h. Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.
- i. Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720 and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.
- j. E3/E4. 9VAC25-40-70.B. authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or

E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

- k. Nutrient Reopener. 9VAC25-40-70.A. authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390.A. authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
- l. Polychlorinated biphenyl (PCB) Pollutant Minimization Plan. This special condition requires the permittee, upon notification from DEQ-NRO, to submit a Pollutant Minimization Plan (PMP) to identify known and unknown sources of low-level PCBs in the effluent. This special condition details the contents of the PMP and also requires an annual report on progress to identify sources.
- m. Effluent Monitoring Frequency. Permittees are granted a reduction in monitoring frequency based on a history of permit compliance. To remain eligible for the reduction, the permittee should not have violations related to the effluent limits for which reduced frequencies were granted. If permittees fail to maintain the previous level of performance, the baseline monitoring frequencies should be reinstated for those parameters that were previously granted a monitoring frequency reduction.
- n. Total Maximum Daily Load (TMDL) Reopener. Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan or other wasteload allocation prepared under section 303 of the Act.

## 22. Permit Section Part II.

Required by VPDES Regulation 9VAC25-31-190, Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

## 23. Changes to the Permit from the Previously Issued Permit:

### a. Special Conditions:

- Water Quality Criteria Reopener, Polychlorinated biphenyl (PCB) Pollutant Minimization Plan and Effluent Monitoring Frequency special conditions were added.
- PCB Monitoring special condition was removed.

### b. Monitoring and Effluent Limitations:

- In order to be protective of the ammonia of water quality criteria, a TKN limit of 5.0 mg/L is included with this reissuance.
- Copper and zinc limits were removed and replaced with monitoring once every six months.
- TRC limits were removed.
- Section 19b. Storm Water Outfalls 001 - 009 was added.

## 24. Variances/Alternate Limits or Conditions:

None.

**25. Public Notice Information:**

First Public Notice Date: TBD.

Second Public Notice Date: TBD.

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected and copied by contacting the: DEQ Northern Regional Office; 13901 Crown Court; Woodbridge, VA 22193; Telephone No. 703-583-3859, caitlin.shipman@deq.virginia.gov. See **Attachment 19** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

**27. Additional Comments:**

Previous Board Action(s): The Town of Orange was issued a Consent Order, effective December 12, 2005. This order was issued due to exceedance of effluent limits for Total Copper and pH, late submission of a schedule of compliance the Total Copper limits and submitting a late annual I&I report. This order was terminated November 13, 2011.

Staff Comments: None.

State/Federal Agency Comments: VDH has no objects to this permits reissuance, a Reliability Class II was recommended for this facility, the permit requires a Reliability Class I.

DCR noted the presence of the Yellow lance (*Elliptio lanceolata*) and the Green floater (*Lasmigona subviridis*). DCR supports the use of UV/ozone disinfection to replace chlorination. This facility currently implements UV disinfection. See **Attachment 20** for DCR's complete comment.

VAFWS had no objections to the facility. FWS recommends adopting the EPA's new ammonia criteria. This criteria may be implemented into VPDES permits once it has been adopted into the Virginia Water Quality Standards.

No comments have been received from VDGIF.

Public Comments:

Owner Comments: